



Pollinator Conservation Efforts in Maine

Jeremy Markuson

Natural Resources Conservation Service Biologist

Wild Blueberry Conference 2020

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Bangor, Maine

Photo Credits: Top, Eric Venturini, The Xerces Society; Bottom, Rebecca Rivernider

The Natural Resources Conservation Service (NRCS)

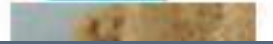
What is the NRCS?

- Part of the USDA
- Started in 1935 in response to the dust bowl
- Helps “eligible producers” do conservation through financial and technical assistance

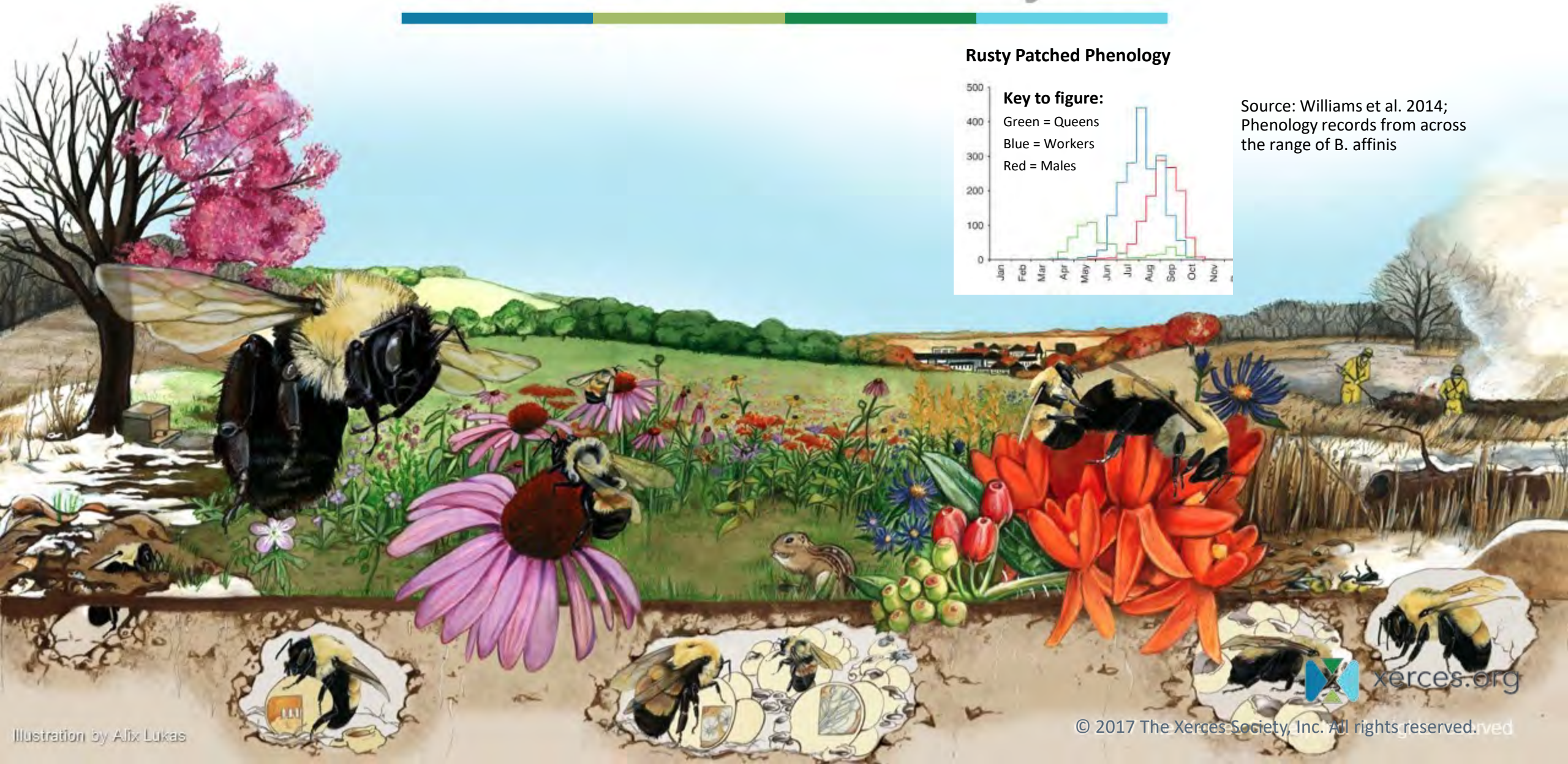


Photo Credit: Jim Johnson, NRCS

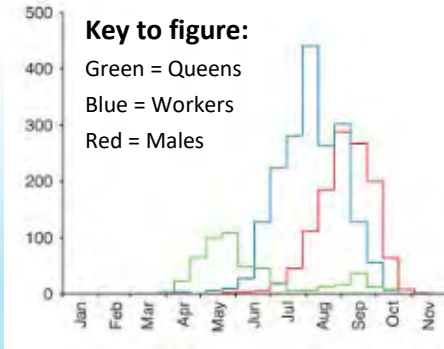
Basic Native Bee Biology



Bumble Bee Life Cycle



Rusty Patched Phenology



Source: Williams et al. 2014;
Phenology records from across
the range of *B. affinis*

Threats to Bumble Bees



Habitat Loss

- Land-use change
- Agriculture intensification
- Land management impacts

Pathogens and disease

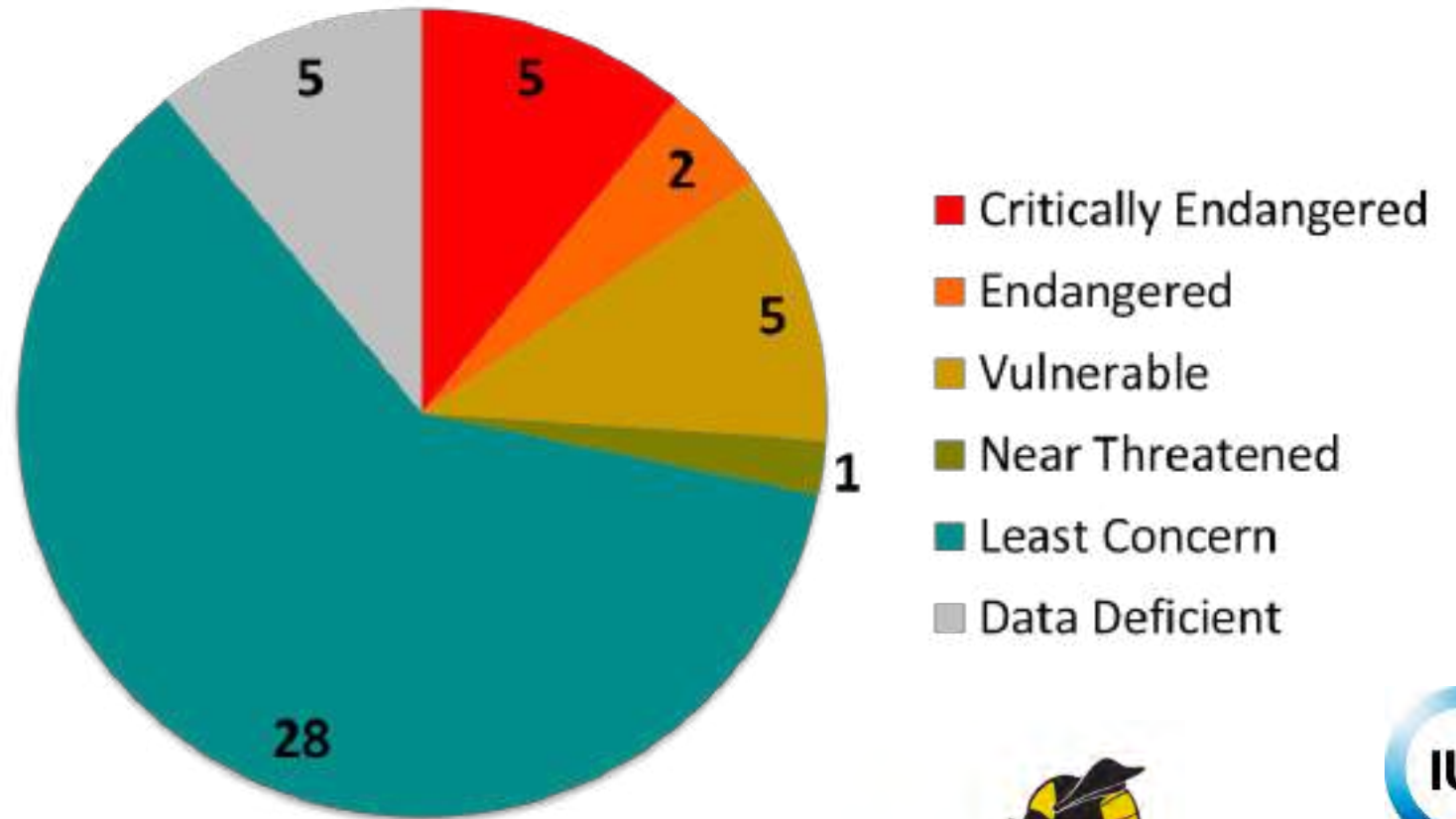
Widespread pesticide use

Climate Change

Status of Pollinators: Bumble Bees

- In North America, approximately **one quarter of all bumble bee species (13/46)** are in a IUCN Red List threatened or near threatened category
- Cuckoo bumble bees appear to be especially imperiled

To find status reviews, and learn more about IUCN visit:
<http://www.xerces.org/bumblebees/>



Hatfield et al. 2014 Xerces Society-IUCN status review



The Federally Endangered Rusty Patched Bumble Bee

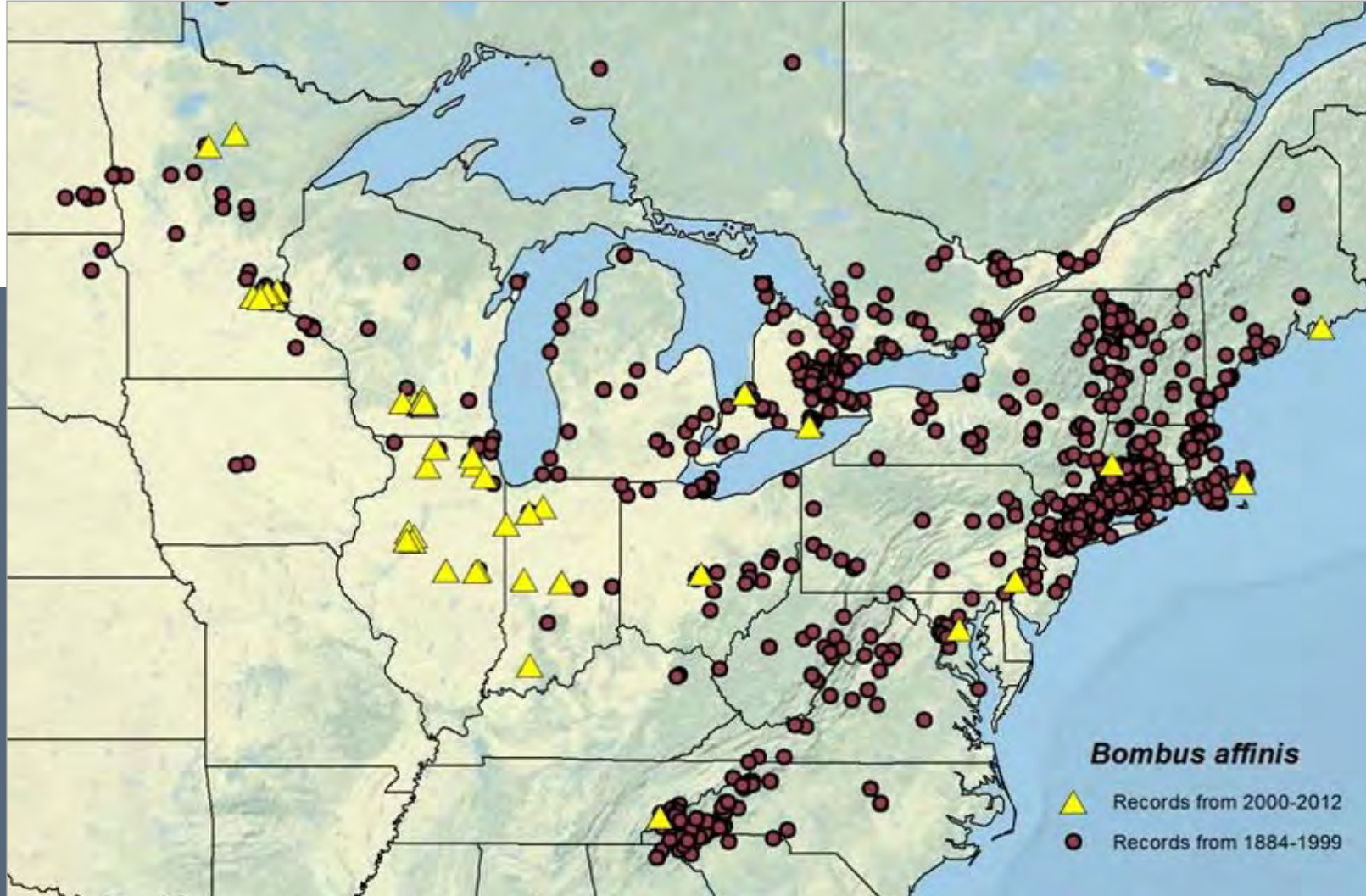
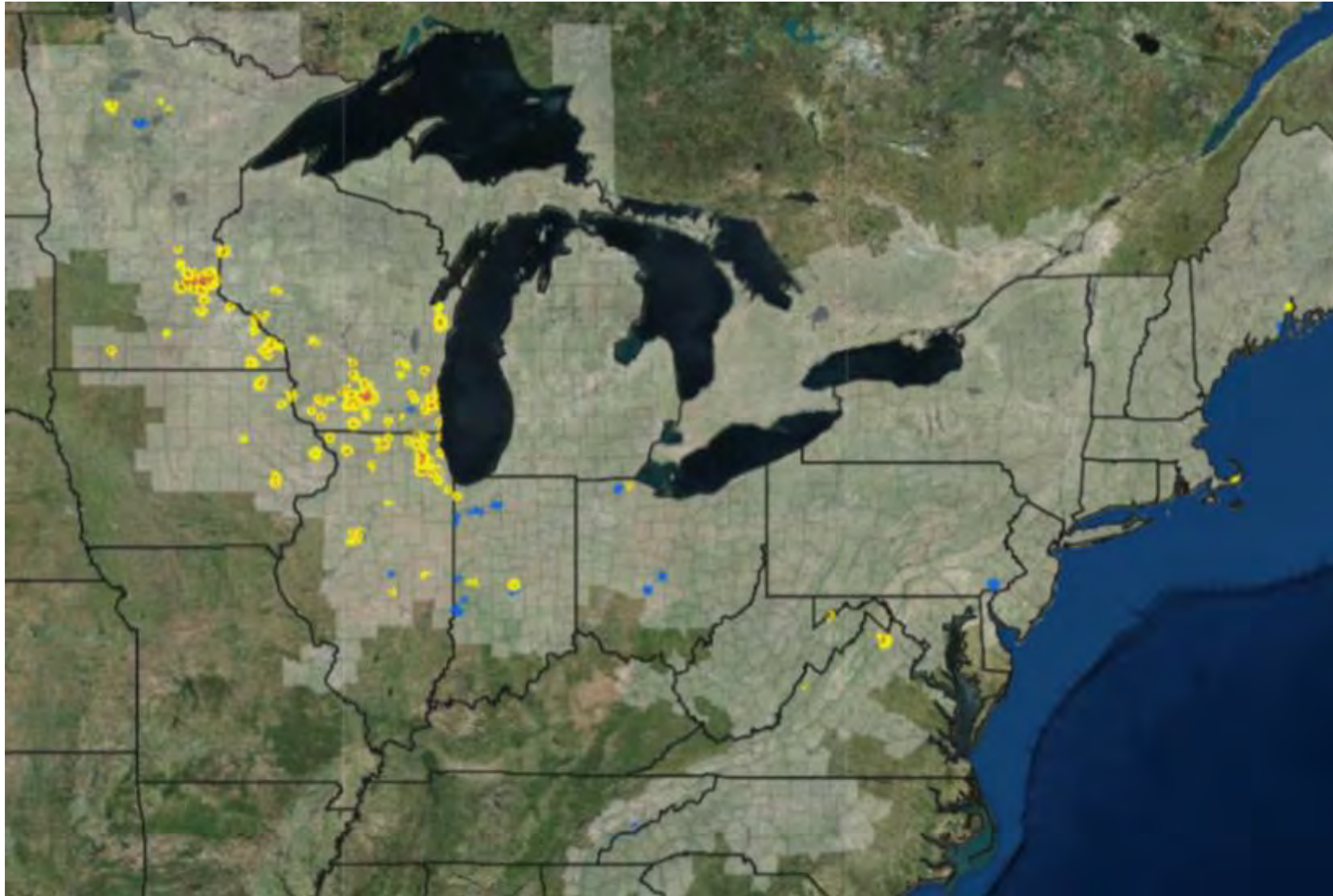


Photo Credit: Sam Droege, USGS, US Bee Monitoring and Inventory Lab, Beltsville, Maryland

Rusty Patched Bumble Bee Range

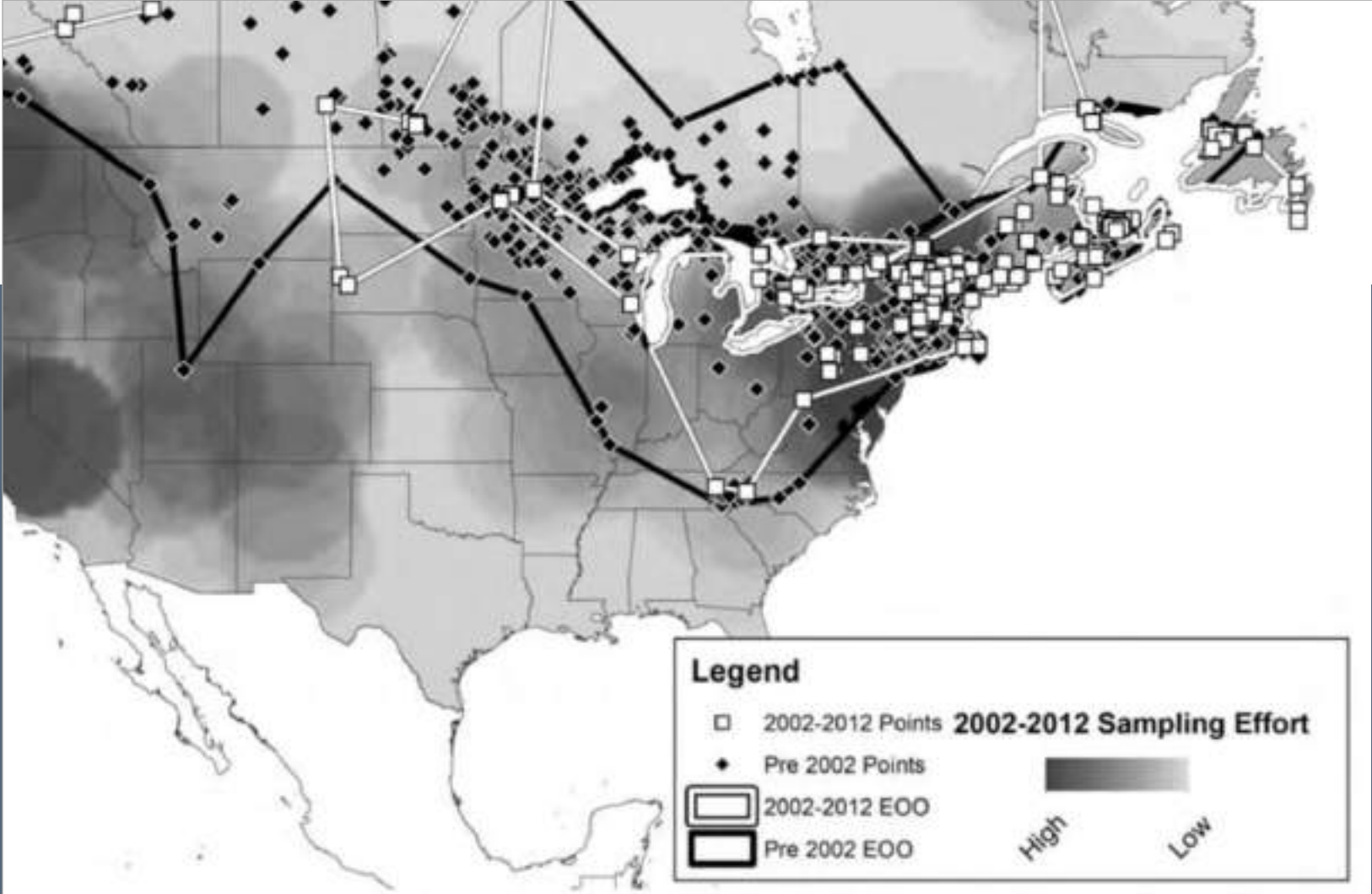


Map: US Fish and Wildlife Service

The Declining Yellow Banded Bumble Bee



Photo Credit: Sarah Foltz Jordan, The Xerces Society



Map: www.iucnredlist.org

Even as bees decline, crop acreage requiring bee pollination grows

- From 1961 to 2006, the proportion of pollinator-dependent crops rose 18-35% globally (300% increase in acreage)
- 5,000 to 10,000 new acres of Wisconsin cranberries over the next decade
- 150,000 new acres of California almonds anticipated

Photo Credit: [Eric Venturini](#)

[Aizen MA, LA Garibaldi, SA Cunningham, AM Klein. 2008. Long-term global trends in crop yield and production reveal no current pollination shortage but increasing pollinator dependency. Current Biology 18:1572-1575.](#)

[Food and Agriculture Organization of the United Nations \(FAO\). 2009. FAOSTAT. Faostat.fao.org](#)



Highbush Blueberry Farm in New Hampshire



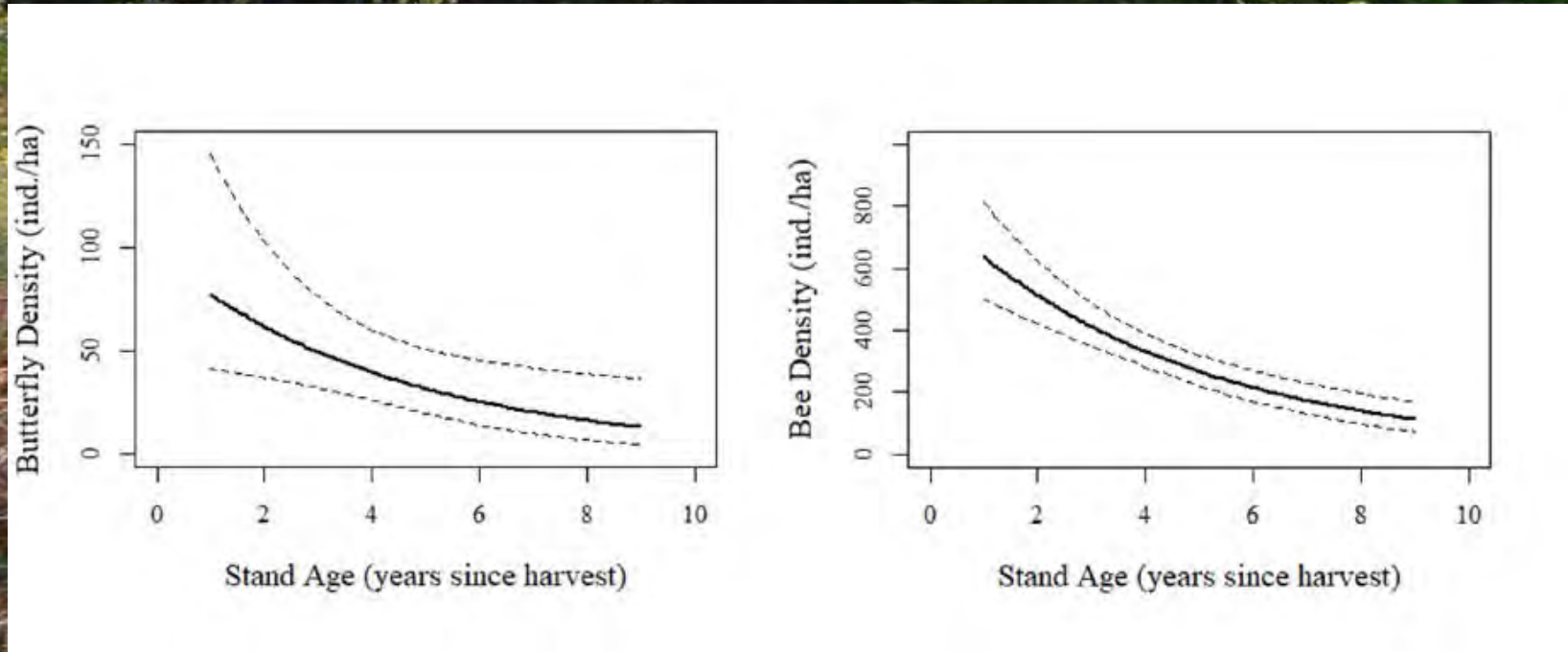
Conservation Cover planting for pollinators



Photo Credit, Eric Venturini, The Xerces Society

Early Successional Habitat in Piscataquis County

Habitat Quality of Early Successional Habitat for Bees and Butterflies Declines with Age



Larkin, McNeil, Mathis, and Rodewald. 2018. Habitat Ecology of Native Pollinators and Imperiled Migratory Songbirds within Early successional Deciduous Forests. A Conservation Effects Assessment Project (CEAP). Coop. Agreem. 68 7482 15 501.

Hedgerow planting for pollinators



Photo Credit, Jessica K. Cruz, The Xerces Society

Cover Crop planting for pollinators



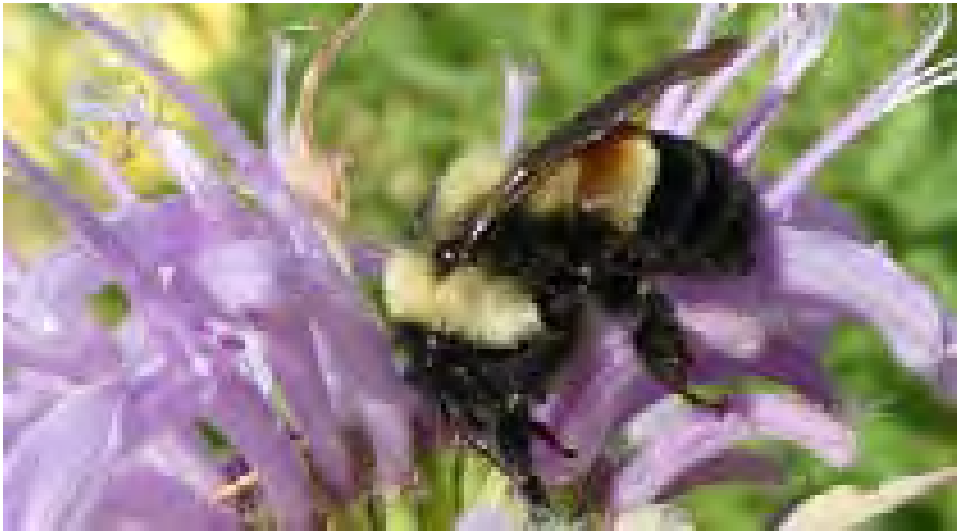
Photo Credit: Kelly Gill, The Xerces Society

Sweet Corn and Apple Orchard in New Hampshire



New England Pollinator Partnership

Covered Species



Rusty-Patched Bumble Bee – Federally Endangered
SGCN in all of New England



New England Pollinator Partnership

Covered Species

Target Species

Rusty-Patched Bumble Bee (*B. affinis*) – Federally Endangered

SGCN in all of New England



Yellow Banded Bumble Bee –
SGCN in all of New England



New England Pollinator Partnership

Covered Species

Target Species

Rusty-Patched Bumble Bee (*B. affinis*) – Federally Endangered

SGCN in all of New England

Yellow Banded Bumble Bee (*B. terricola*)–

SGCN in all of New England



Monarch Butterfly – Under Review

SGCN in Maine, New Hampshire, Vermont, and Rhode Island



New England Pollinator Partnership

Target Species

Rusty-Patched Bumble Bee (*B. affinis*) – Federally Endangered

SGCN in all of New England



Yellow Banded Bumble Bee (*B. terricola*)– Under Review

SGCN in all of New England



Monarch Butterfly (*Danaus plexippus*) – Under Review

SGCN in Maine, New Hampshire, Vermont, and Rhode Island



Non-Target, Covered Species



American Bumble Bee (*B. pensylvanicus*) – Image Copyright Andrew Williams, Bugguide.net

Yellow Bumble Bee (*B. fervidus*) – Image Copyright Hadel Go, DiscoverLife.org

Non-Target, Covered Species



Confusing Bumble Bee (*B. perplexus*) – Image Copyright Sheryl Pollock, DiscoverLife.org



Lemon Cuckoo Bumble Bee (*B. citrinus*) – Image Copyright John Ascher, DiscoverLife.org



Fernald's Cuckoo Bumble Bee (*B. fernaldae/flavidus*) – Image Copyright Betsy Leppo, Bugguide.net



Indiscriminate Cuckoo Bumble Bee (*B. insularis*) – Image Copyright Ann McKenzie, Bugguide.net



Ashton's Cuckoo Bumble Bee (*B. ashtoni/bohemicus*) – Image Copyright Lawrence Packer, DiscoverLife.org



Variable Cuckoo Bumble Bee (*B. variabilis*) – Image Copyright Hadel Go, Bugguide.net



Priority Landscape/Focus Area

Participating States

Maine

New Hampshire

Vermont

Massachusetts

Rhode Island

Connecticut

NRCS Core EQIP Conservation Practices

Conservation Cover (327)

Hedgerow Planting (422)

Field Border (386)

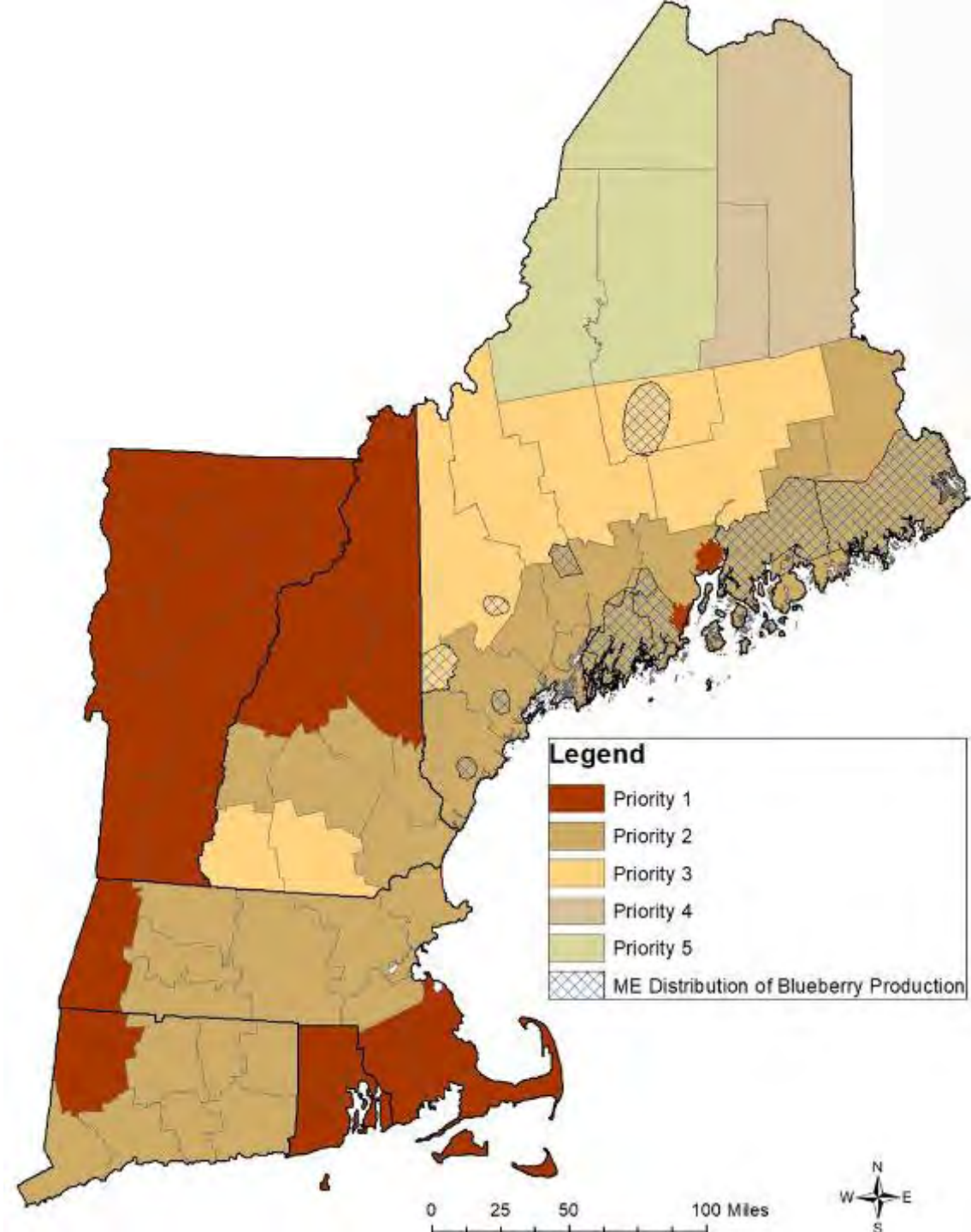
Tree/Shrub Establishment (612)

Early Successional Habitat Development & Management (647)

Integrated Pest Management (595)

Conservation Activity Plans

Other Core Practices



Goals and Framework

Goals

1. Incentive program participation through NRCS financial assistance
2. Engage the agricultural community in pollinator conservation
3. Create or enhance pollinator habitat
4. Protect target species from pesticides
5. Develop/revise BMPs in collaboration with USFWS, state agencies, and Xerces
6. Preclude the need to list target species

